REMARKS

In response to the Office Action dated March 6, 2007, claims 1, 8, 18, 21, 22 and 23 have been amended. Claims 1-23 are pending in the application.

In paragraph 3 on page 2 of the Office Action, claim 21 was objected to because of informalities.

Applicants respectfully traverse the objection to the claims, but in the interest of expediting prosecution have amended the claims to overcome the objections as suggested. Applicant respectfully submits that the amendment to the claims does not narrow the scope of the claims, but rather merely clarifies the invention

In paragraph 4 on page 2 of the Office Action, claims 8, 18 and 23 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention

Applicants respectfully traverse the objection to the claims, but in the interest of expediting prosecution have amended the claims to overcome the objections as suggested. Applicant respectfully submits that the amendment to the claims does not narrow the scope of the claims, but rather merely clarifies the invention

In paragraph 5 on page 3 of the Office Action, claims 1-3, 5, 7-9, 11, 13-15, 17, 18 and 20-24 were rejected under § 103(a) as being unpatatentable over Guha in view of DeKoning et al.

In paragraph 6 on page 19, Claims 4, 6, 10, 12, 16 and 19 were acknowledged as being allowable is rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicants respectfully traverse the rejection, but in the interest of expediting prosecution have amended claims to more particularly distinguish the invention over the cited reference.

Guha discloses a resource management system for managing service guarantees. Guha discloses a QoS enforcer 34 connected to a load balancer35. The load balancer is connected to a layer switch 38. The layer switch is connected to Application Servers 39, 40, 41. A SAN switch 42 is then coupled to storage 58. Content controller 36 communicates to the Application Servers 39, 40, 41 the storage pool 58, and the QoS Enforcer 34. The QoS enforcer 34 forwards content request information to the content controller 36. The content controller 36 updates the content request traffic profile maintain in the content controller 36. The content controller 36 determines if load balancing is required and based on the traffic profile. As traffic for content requests for each class of application increases, the QoS Enforcer 34 controls the routing into the data center via the Load Balancer 35, which directs the request to the selected application server. Based on the policy specified in the QoS Enforcer 34, content requests may be dropped or requeued.

In contrast, independent claims 1, 8, 14, 18, 21, 22, 23 and 24 recite at least a performance monitor, coupled to an SLA services module, for communicating with at least one I/O performance gateway to collect data and send throttling requests based upon signals from the SLA services module. The Office Action states that the performance monitor is shown by QoS enforcer 34. However, the Office Action also indicates that QoS enforcer 34 is the performance gateway recited in claims 1 and 22. Moreover, QoS enforcer 34 does not send throttling requests to a performance gateway based upon signals from a SLA services module. The Office Action returns to the QoS enforcer 34 for the suggestion for an SLA services module. Nevertheless, Guha simply does not describe send throttling requests from a performance monitor to a performance gateway based upon signals from a SLA services module.

In addition, Guha fails to suggest controlling the rate of I/O, i.e., throttling, as specified in the independent claims. Guha merely discloses completely rerouting I/O, requeuing to cause delays in processing the I/O or simply dropping the I/O.

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As admitted by the Office Action Guha also fails to disclose at least one thread pair including an inbound thread for signals from the at least one I/O performance gateway and an outbound thread for signals to the at least one I/O performance gateway.

Still further, with respect to claims 1, 8, 22 and 23, Guha fails to disclose, teach or suggest a database manager coupled to a database of SLA and statistic data. Guha fails to even mention statistic data.

Still further, with respect to claims 1, 8, 22 and 23, Guha fails to disclose, teach or suggest a performance monitor, coupled to a SLA services module, for communicating with the at least one I/O performance gateway to collect data and send throttling requests based upon signals from the SLA services module.

With respect to independent claims 1 and 22, Guha fails to disclose, teach or suggest at least one I/O performance gateway that is disposed between the at least one application host and the storage subsystem, for intercepting I/O operations and a Service Level Agreement (SLA) server that is coupled in parallel only with the at least one I/O performance gateway and the storage system. Rather, according to the Office Action, the QoS enforcer 34, load balancer 35, layer switch 38, Application Servers 39, 40, 41, SAN switch 42 and storage 58 are connected in series as listed.

Accordingly, Guha fails to disclose, teach or suggest the embodiments recited in independent claims 1, 8, 14, 18, 21, 22, 23 and 24.

DeKoning et al. fail to overcome the deficiencies of Guha. DeKoning et al. is merely cited as disclosing the use of a thread pair that may be combined with the teachings of Guha. However, DeKoning et al. fail to disclose, teach or suggest the additional limitations discussed above with respect to Guha.

DeKoning et al. discloses a multi-tasking, multi-threaded technique that may be employed within a RAID controller. However, DeKoning et al. fails to disclose a thread pair that includes an inbound thread for signals from at least one I/O performance gateway and an outbound thread for signals to the at least one I/O performance gateway. Neither Guha nor DeKoning recognize the arrangement of modules recited in the independent claims, and further fail to recognize the advantages of using a thread pair that includes an inbound thread for signals from at least one I/O performance gateway and an outbound thread for signals to the at least one I/O performance gateway. Further, the mere teaching of multi-threading fails to suggest providing a separate inbound thread and an outbound thread for handling signals between at least one I/O performance gateway and an SLA service module.

Accordingly, Applicants respectfully submit that Guha and DeKoning et al., alone or in combination, fail to disclose, teach or suggest the embodiments recited in independent claims 1, 8, 14, 18, 21, 22, 23 and 24.
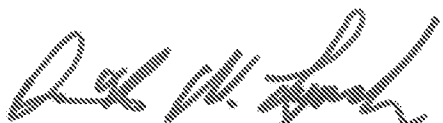
Dependent claims 2-7, 9-13, 15-17 and 19-20 are also patentable over the references, because they incorporate all of the limitations of the corresponding independent claims 1, 8, 14 and 18, respectively. Further dependent claims 2-7, 9-13, 15-17 and 19-20 recite additional novel elements and limitations. Applicants reserve the right to argue independently the patentability of these additional novel aspects. Therefore, Applicants respectfully submit that dependent claims 2-7, 9-13, 15-17 and 19-20 are patentable over the cited references.

On the basis of the above amendments and remarks, it is respectfully submitted that the claims are in immediate condition for allowance. Accordingly, reconsideration of this application and its allowance are requested.

If a telephone conference would be helpful in resolving any issues concerning this communication, please contact Attorney for Applicant, David W. Lynch, at 423-757-0264.

Respectfully submitted,

Chambliss, Bahner and Stophel
1000 Tallan Building
Two Union Square
Chattanooga, TN 37402
423-757-0264

By: _____

Name: David W. Lynch
Reg. No.: 36,204